

IN THE CLAIMS

1. (Currently Amended) A method for forming a photoresist pattern comprising the steps of:

(a) coating an etching mask layer on an underlying layer;
(b) coating a photoresist ~~film~~ composition including silicon on the etching mask layer to form a photoresist film, the photoresist film generating gas upon exposure to light in part (d) below;

(c) coating a gas protection film comprising a water-soluble polymer material capable of absorbing gas generated from the photoresist film on the photoresist film, the gas protecting film absorbing gas generated from the photoresist film;

(d) performing a photolithography process on the resulting structure to form a photoresist film pattern;

(e) etching the etching mask layer of ~~step~~ part (b) using the photoresist film pattern as an etching mask to form an etching mask pattern; and

(f) forming an underlying layer pattern by an etching process using the etching mask pattern~~[[,]]~~

~~whereby said photoresist film generates gas upon exposure to light in the process of step (d) and said gas protecting film absorbs the gas generated from the photoresist film.~~

2. (Currently Amended) The method according to claim 1, wherein the etching mask layer of ~~step~~ part (a) is formed by coating an i-line photoresist or KrF photoresist.

3. (Currently Amended) The method according to claim 1, wherein the ~~photoresist film of step (b) is formed by coating a photoresist including silicon and the gas protection film protecting layer is capable of absorbing the silicon gas.~~

4. (Currently Amended) The method according to claim 3, wherein the photoresist composition is suitable for a photolithographic process employing a light source selected from the group consisting of one of photoresist for ArF (193nm), VUV (157nm) [[or]] and EUV (13nm).

5. (Cancelled)

6. (Currently Amended) The method according to claim [[5]] 1, wherein the water-soluble polymer is selected from the group consisting of poly(methyl methacrylate/acrylic acid), poly(methyl acrylate/acrylic acid), poly(dimethyl acrylate/methyl acrylate), poly(dimethyl acrylate/methyl methacrylate), poly(vinyl pyrrolidone), poly(dimethyl acrylate) and mixtures thereof.

7. (Currently Amended) The method according to claim [[7]] 1, wherein the light is ArF (193nm), VUV (157nm) or EUV (13nm).

8. (Currently Amended) The method according to claim 1, wherein the step part (c) further comprises:

(c-1) spin coating a gas protection composition on the resultant surface of (b); and

(c-2) baking the coated gas protection composition.

9. (Currently Amended) A method for forming a photoresist pattern comprising:

(a) coating an etching mask layer on an underlying layer;

(b) coating a photoresist ~~film~~ composition including silicon compound on the etching mask layer to form a photoresist film;

(c) coating a gas protection composition comprising water-soluble polymer selected from the group consisting of poly(methyl methacrylate/acrylic acid), poly(methyl acrylate/acrylic acid), poly(dimethyl acrylate/methyl acrylate), poly(dimethyl acrylate/methyl methacrylate), poly(vinyl pyrrolidone) and poly(dimethyl acrylate) on the photoresist film;

(d) performing a photolithography process on the resulting structure to form a photoresist film pattern;

(e) etching the etching mask layer of step (b) using the photoresist film pattern as an etching mask to form an etching mask pattern; and

(f) forming an underlying layer pattern by an etching process using the etching mask pattern.

10. (Withddrawn) A gas protection composition for adsorbing silicon gas comprising:

a water-soluble polymer selected from the group consisting of poly(methyl methacrylate/acrylic acid), poly(methyl acrylate/acrylic acid), poly(dimethyl acrylate/methyl acrylate), poly(dimethyl acrylate/methyl methacrylate), poly(vinyl pyrrolidone), poly(dimethyl acrylate) and mixture thereof.